

REMARKS

As preliminary matter, Applicant appreciates the Examiner's indication that Claim 6 has been allowed.

Claims 1, 2 and 8 stand rejected under 35 U.S.C. §103 as being unpatentable over United States Patent No. 6,439,731 to Johnson et al. in view of United States Patent No. 5,068,771 to Savage, Jr. Applicant has cancelled Claim 2, without prejudice, thereby rendering this rejection moot with respect to this claim. However, with respect to Claims 1 and 8, Applicant respectfully traverses this rejection.

Applicant respectfully submits that the cited references fail to disclose or suggest all of the features of the present invention. More specifically, neither the Johnson et al. reference nor the Savage reference, alone or in combination, disclose or suggest a surface lighting device that includes, *inter alia*, a reflection plate with "a plurality of through-holes in which light emitting portions of the light emitting elements can be fit," as defined in independent Claims 1 and 8.

One example of an embodiment of the invention defined in independent Claims 1 and 8 is shown in Applicant's Figure 3, which includes a reflection plate 2 with "a plurality of through-holes" through which the light emitting portions of light emitting elements 3 can be fit.

As correctly acknowledged by the Examiner, the Johnson et al. reference fails to teach that the non-light emitting portions of the light emitting elements are covered by a

reflection plate, and that the reflection plate includes through-holes. Accordingly, the Examiner relied upon lens cap 118 of Figure 6 of the Savage reference for these features.

However, even assuming *arguendo* that one of ordinary skill in the art would have modified the Johnson et al. reference in light of the Savage reference, the resulting device still lacks at least one of the features defined in independent Claims 1 and 8. In particular, the proposed combination lacks a reflection plate with “a *plurality* of through-holes in which light emitting portions of the light emitting elements can be fit” (emphasis added), as defined in independent Claims 1 and 8. Assuming *arguendo* that one of ordinary skill in the art would have added the lens cap 118 of Savage to the LEDs of illumination source 12 of Johnson et al., they would have used an individual lens cap 118 for each LED, which is the manner that Savage teaches the use of a lens cap. The use of an individual lens cap for each LED allows for attachment via spring fingers and provides a frusto-conical reflecting surface, both of which are features described in Savage. Moreover, the Savage reference does not suggest the use of a single lens cap with more than one LED.

In contrast, the invention defined in independent Claims 1 and 8 does not include an individual reflective lens cap on each light-emitting element, but instead includes at least one reflection plate with a plurality of through-holes therein. Thus, one reflection plate serves to provide a reflective surface for a plurality of light-emitting elements, with one light-emitting element being fit within each of the through-holes. Accordingly, as all of the features of independent Claims 1 and 8 are not disclosed or suggested in the cited references, Applicant respectfully requests the withdrawal of this §103 rejection of Claims 1 and 8.

Claims 3 and 5 stand rejected under 35 U.S.C. §103 as being unpatentable over United States Patent No. 6,325,524 to Weber et al. in view of Johnson et al. Applicant respectfully traverses this rejection.

Applicant respectfully submits that the cited references fail to disclose or suggest all of the features of the claimed invention. More specifically, neither the Weber et al. reference nor the Johnson et al. reference disclose or suggest a surface lighting device in which “the linear light sources are located above the substrate but below the reflection plate,” as defined in amended independent Claim 3.

As can be seen in Figure 2 of the Weber et al. reference, light sources 21, 22 and 23 are located above surface 91, which the Examiner equated with the claimed reflection plate. Light sources 21-23 of Weber et al. are also located above heat sink 24, which the Examiner equated with the claimed substrate. Thus, the light sources of Weber et al. are not located above the substrate but below the reflection plate, as recited in Claim 3. Instead, although the light sources in Weber et al. are located above the substrate, they are also located above the reflection plate. Thus, the Weber et al. reference does not disclose all of the features of Claim 3.

Further, Applicant respectfully submits that there is no suggestion in the Weber et al. reference to move the reflection plate so that the light sources are below the reflection plate. In fact, the location of light sources 21-23 as being above the surfaces 91 appears important to achieve the desired direction of the light rays in the Weber et al. reference, as illustrated by light ray 27 of Figure 2 of Weber et al. Accordingly, Applicant respectfully

submits that one of ordinary skill in the art would not have been motivated to modify the device of Figure 2 of Weber et al. so that the light sources were below the reflection plate. In addition, the Johnson et al. reference does not remedy this deficiency either, but instead also includes a light reflecting surface that is below the light sources (Johnson et al., col. 4, lines 61-63). Accordingly, as all of the features of independent Claim 3 are not disclosed or suggested in the cited references, Applicant respectfully requests the withdrawal of this §103 rejection of independent Claim 3 and associated dependent Claim 5.

Claims 4 and 7 stand rejected under 35 U.S.C. §103 as being unpatentable over Johnson et al. in view of United States Patent No. 6,679,621 to West et al. Applicant respectfully traverses this rejection.

Applicant respectfully submits that one of ordinary skill in the art would not have been motivated to modify the device of the Johnson et al. reference in light of the West et al. reference in the manner suggested by the Examiner. In the Office Action, the Examiner correctly acknowledged that the Johnson et al. reference fails to teach the light irradiation angle correcting means. Accordingly, the Examiner asserted that it would have been obvious to have included a lens 44 of Figure 5A of West et al. on each light source 12 of Johnson et al. However, Applicant respectfully submits that one of ordinary skill in the art would not have added a lens, such as lens 44 of Figure 5A of West et al., to each light source of Johnson et al. because the device of Johnson et al. is a backlight LCD in which the light sources emit light *perpendicular* to their substrate, while the lens of West et al. directs light *parallel* to a substrate. More specifically, as can be seen in Figure 2 of Johnson et al., light

sources 12 direct light perpendicular to PCB substrate 10, towards diffuser panel 20 and LCD panel 18. In contrast, as can be seen in, for example, Figures 5E, 5F and 5g of West et al., the lenses of West et al. direct light sideways, i.e., parallel to the substrate upon which they are attached. Thus, applying the lenses of West et al. to the device of Johnson et al. would redirect essentially all of the light sideways, parallel to PCB 10, and thus the device of Johnson et al. would not operate properly because the light would not reach diffuser panel 20 and LCD panel 18. Accordingly, since one of ordinary skill in the art would not have modified the device of Johnson et al. in view of West et al. in the manner suggested by the Examiner, Applicant respectfully requests the withdrawal of this §103 rejection of independent Claims 4 and 7.

Further, Applicant also separately traverses this §103 rejection as applied to independent Claim 7 because the cited references fail to disclose or suggest the claimed light irradiation angle correcting means in which “a maximum irradiation angle of the light-emitting elements is corrected such that a point where a maximum irradiation direction of the light-emitting elements, which is corrected by the light irradiation angle correcting means in the light-emitting portions or on the light-emitting portions of the light-emitting elements constituting the linear light source of attention, and the diffusion plate cross with each other goes beyond a middle point of the linear light source adjacent to the linear light source of attention,” as defined in independent Claim 7.

One example of an embodiment of the invention defined in independent Claim 7 is shown in Applicant’s Figure 15. As shown in the bottom portion of Figure 15, the point

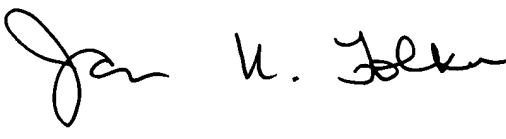
E, which is the point where the maximum irradiation direction of element A and the diffusion plate 1 cross, goes beyond a middle point C of the linear light source B and the linear light source of attention (A). In other words, the light irradiation angle correcting means corrects the light rays so that point E, which is the intersection of the maximum irradiation direction and plate 1, is located on the opposite side of a center line (C) between the light source at issue (A) and an adjacent light source (B). In contrast, neither Johnson et al. nor West et al. disclose or suggest this feature. The Johnson et al. reference fails to specifically disclose the maximum irradiation direction. In West et al., there is no disclosure of the relationship between the rays of one light source and an adjacent light source, so there is no disclosure of the specifically claimed feature of having the maximum irradiation direction of one light source cross with the diffusion plate at a point that is past the middle point between the one light source and an adjacent light source. Accordingly, as all of the features of independent Claim 7 are not disclosed or suggested in the cited references, Applicant respectfully requests the withdrawal of this §103 rejection for this reason also.

For all of the above reasons, Applicant requests reconsideration and allowance of the claimed invention. Should the Examiner be of the opinion that a telephone conference

would aid in the prosecution of the application, or that outstanding issues exist, the Examiner is invited to contact the undersigned.

Respectfully submitted,

GREER, BURNS & CRAIN, LTD.

By 

James K. Folker

Registration No. 37,538

November 17, 2006

Suite 2500
300 South Wacker Drive
Chicago, Illinois 60606
(312) 360-0080

Customer No. 24978

P:\DOCS\1324\70182\AR2389.DOC